

## REMARKS

Claims 1-31 are pending in the present application, were examined and stand rejected. In response, Claims 1, 11, 21 and 26 are amended, no claims are cancelled and no claims are added. Applicants respectfully request reconsideration of pending Claims 1-31 in view of at least the following remarks. Reconsideration and withdrawal of the rejections of record are requested in view of such amendments and the following discussion.

### **I. Claims Rejected Under 35 U.S.C. §102**

The Examiner has rejected Claims 1, 3-4, 11 and 13-14 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,566,950 issued to Rokhsaz ("Rokhsaz"). Applicant respectfully traverses this rejection.

Regarding Claims 1 and 11, Claims 1 and 11 recite the following claim features, which are neither disclosed, taught nor suggested by Rokhsaz:

a pull-down circuit including at least one pull-down device of the first device type having a source coupled to ground and a gate coupled to a gate of the pull-up device, the pull-up circuit and the pull-down circuit to charge an output node and a complement output node in opposite directions to generate a differential predriver signal pair. (Emphasis added.)

According to the Examiner, the above-recited features of Claims 1 and 11, prior to amendment, are disclosed by pull-down circuit (84, 88), as shown in FIG. 3 of Rokhsaz. Applicant respectfully submits that neither transistor 84 nor transistor 88 of the pull-down circuit disclosed by Rokhsaz in FIG. 3 includes a gate coupled to a gate of either transistor 82 or transistor 86 of the pull-up circuit of Rokhsaz, as shown in FIG. 3.

Accordingly, although transistors 84 and 86 of the pull-down circuit disclosed by Rokhsaz are coupled to ground, neither transistors 84 or 86 of the pull-down circuit have a gate coupled to a gate of transistor 82 or transistor 86 of the pull-up circuit, as recited by amended Claims 1 and 11. Consequently, assuming, arguendo, that transistors 36 and 38 disclose line driver switches, as recited by amended Claims 1 and 11, the transistors of the pull-up circuit and pull-down circuit disclosed by Rokhsaz neither disclose, teach nor suggest each of the recited features of amended Claims 1 and 11.

As mandated by case law, "Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the

claim.” Lindemann Maschinenfabrik v. American Hoist & Derrick (“Lindemann”), 730 F.2d 452, 1458 (Fed. Cir. 1994) (emphasis added). Additionally, each and every element of the claim must be exactly disclosed in the anticipatory reference. Titanium Metals Corp. of American v. Banner (“Banner Titanium”), 778 F.2d 775, 777 (Fed. Cir. 1985).

Here, Applicant respectfully submits that Applicant’s amendments to Claims 1 and 11 prohibits the Examiner from relying on Rokhsaz as an anticipatory reference, since Rokhsaz fails to exactly disclose each and every element recited by amended Claims 1 and 11.

Banner Titanium, *supra*. As indicated above, the pull-down circuit recited by amended Claims 1 and 11 includes a source coupled to ground, as well as a gate coupled to a gate of a pull-up device of the pull-up circuit. As indicated above, neither of the transistors of the pull-up circuit (82, 86) have a gate coupled to a gate of pull-down transistors 84 and 88, as shown in FIG. 3 of Rokhsaz, as would be required to anticipate amended Claims 1 and 11.

Therefore, Applicant respectfully submits that the Examiner fails to establish a *prima facie* case of anticipation, since Applicant’s amendments to Claims 1 and 11 prohibit the Examiner from illustrating that the single prior art reference disclosure of Rokhsaz includes the presence of each and every element recited by amended Claims 1 and 11, and as arranged in amended Claims 1 and 11. Lindemann, *supra*.

Consequently, Applicant respectfully submits that amended Claims 1 and 11 are patentable over Rokhsaz as well as the references of record. Therefore, Applicant respectfully requests that the Examiner reconsider and withdraw the §102(e) rejection of Claims 1 and 11.

Regarding Claims 3-4 and 13-14, Claims 3-4 and 13-14, based on their dependency from amended Claims 1 and 11, respectively, and for at least the reasons provided above, are also patentable over Rokhsaz as well as the references of record. Therefore, Applicant respectfully requests that the Examiner reconsider and withdraw the §102(e) rejection of Claims 3-4 and 13-14.

The Examiner has rejected Claim 21 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,959,492 issued to Khoury et al. (“Khoury”). Applicant respectfully traverses this rejection.

Regarding Claim 21, Claim 21, as amended, recites the following claim features, which are neither disclosed, taught nor suggested by Khoury:

a pre-driver includes a pull-up circuit having at least one pull-up device of a first device type, and a pull-down circuit having at least one pull-down device of the first device type including a source coupled to ground. (Emphasis added.)

According to the Examiner, the above-recited features of amended Claim 21, prior to amendment, are disclosed by a pull-down circuit (116 and 114) of an output driver, as shown in FIG. 4A of Khoury. Applicant respectfully submits that neither transistor 116 nor transistor 114 of the pull-down circuit (*see*, FIG. 4A) disclosed by Khoury have a source coupled to ground. As shown in FIG. 4A of Khoury, transistors 114 and 116 include a source coupled to node 118, which is not coupled to ground.

Accordingly, Applicant's amendment to Claim 21 prohibits the Examiner from relying on Khoury as an anticipatory reference, since Khoury fails to exactly disclose each and every element recited by amended Claim 21, and specifically, a pull-down circuit having at least one pull-down device including a source coupled to ground. Banner Titanium, supra. Consequently, Applicant respectfully submits that Applicant's amendment to Claim 21 prohibits the Examiner from establishing a *prima facie* case of anticipation of amended Claim 21 since Applicant's amendment prohibits the Examiner from illustrating that the single prior art reference disclosure of Khoury includes the presence of each and every element recited by amended Claim 21 and as arranged in amended Claim 21. Lindemann, supra.

Therefore, Applicant respectfully submits that Claim 21 is patentable over Khoury as well as the references of record. Therefore, Applicant respectfully requests that the Examiner reconsider and withdraw the §102(b) rejection of Claim 21.

## **II. Claims Rejected Under 35 U.S.C. §103**

The Examiner has rejected Claims 1-5, 9-15, 19-20 and 26-30 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,965,299 issued to Dally et al. ("Dally") in view of Rokhsaz. Applicant respectfully traverses this rejection.

Regarding Claims 1 and 26, Claims 1 and 26 are amended to recite the following claim features, which are neither taught nor suggested by the combination of Dally in view of Rokhsaz:

a pull-down circuit including at least one pull-down device of the first device type having a source coupled to ground and a gate coupled to a gate of the pull-up device, the pull-up circuit and the pull-down circuit to charge an output node and a complement output node in opposite directions to generate a differential predriver signal pair to open/close a pair of line driver switches of the output driver of a second device type to generate a differential output driver signal pair for a pair of output pads coupled to the pair of line driver switches to provide the differential output driver signal pair onto a motherboard for communication over a serial interconnect. (Emphasis added.)

As correctly noted by the Examiner:

Dally discloses the claimed invention except for an output communications lines are on a motherboard. (pg. 7, ¶1 of Office Action mailed February 21, 2006.)

As a result, the Examiner cites Rokhsaz. According to the Examiner, Rokhsaz discloses that output communication lines may be incorporated on a printed circuit board (motherboard) along with another electronic device. (col. 3, lines 43-50.) (pg. 7, ¶2 of Office Action mailed February 21, 2006.)

As mandated by case law, all words in a claim must be considered in judging the patentability of that claim against the prior art. In re Wilson, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970).

Here, Applicant respectfully submits that the Examiner has ignored the recited feature of amended Claims 1 and 26, which require that the pair of output pads are coupled to the pair of line driver switches. As indicated by the Examiner, transistors 137 and 138 of FIG. 9 of Dally, which is element 160 of FIG. 7, disclose the pair of line driver switches of an output driver of a second device type, as recited by amended Claims 1 and 26. Applicant respectfully disagrees.

As clearly illustrated by FIGS. 7 and 9 of Dally, transistors 137 and 138 are not coupled to output pads, as recited by amended Claims 1 and 26. As shown in FIG. 9, transistors 137 and 138 are coupled to transistor 135 and transistors 141 and 142.

As disclosed by Dally:

The present invention can be used to realize an on-chip transmission line with one or more repeaters as illustrated in FIG. 7 for the case of a single

repeater. The line 107 is broken into two segments, 107A and 107B. During each data interval, as signaled by CK1 being asserted, driver 110 drives the current bit onto line segment 107A in exactly the manner described in relation to FIGS. 3 and 6. After line 107A reaches the sense voltage, CK is asserted. This triggers repeater 160 to sense the voltage on segment 107A, determine whether the current bit is a "1" or a "0", and repeat this bit by driving segment 107. After segment 107 is driven by the sense voltage, CK3 is asserted which triggers amplifier 119 to sense the voltage on this segment and generate the output for the entire line. (col. 6, lines 1-14.) (Emphasis added.)

Based on the cited passage above, amplifier 119 generates the output for the entire line. Hence, amplifier 119 generates the output (oP, oN) for the entire line. Accordingly, Applicant respectfully submits that to render amended Claims 1 and 26 obvious requires the Examiner to illustrate that transistor 137 and transistor 138 are coupled to the output (oP, oN) of the entire line, as shown in FIGS. 5 and 7. Apposite to amended Claims 1 and 26, as shown in FIGS. 5, 7 and 9, Dally teaches that transistors 137 and 138 are not coupled to output pads to provide the differential output driver signaling pair onto a motherboard for communication over a serial interconnect, as recited by amended Claims 1 and 26.

As mandated by case law, to establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974).

Here, Dally teaches that the output for an entire line is generated by an on-chip transmission line with one or more repeaters. As illustrated in FIG. 7, Dally teaches a single repeater that provides an output by the entire line using clocked receiver 119 to generate output signals (oP, oN). As indicated above, transistors 137 and 138, relied on by the Examiner to teach the pair of line driver switches recited by amended Claims 1 and 26, would have to be coupled to output nodes in order to render amended Claims 1 and 26 obvious over Dally in view of Rokhsaz.

Applicant respectfully submits that even if one were to provide the circuit (FIG. 7) of Dally on a printed circuit board, as disclosed by Rokhsaz, such person of skill in the art would not connect the transistors of a repeater 160 to output nodes of an output drive. This modification would not be made by one of skill in the art since the repeater 160, as disclosed by Rokhsaz, is not provided to generate the final output signal; Dally teaches that clocked receiver 119 generates the output for an entire line. (See, col. 6, lines 1-14.)

Consequently, Applicant respectfully submits that the prior art combination of Dally in view of Rokhsaz does not teach or suggest all the claim limitations of amended Claims 1 and 26, and specifically that the pair of line driver switches, which generate an output differential signal pair for a pair of output pads are coupled to the line driver switches, as recited by amended Claims 1 and 26. Id.

Therefore, Applicant respectfully submits that amended Claims 1 and 26 are patentable over the combination of Rokhsaz in view of Dally. Consequently, Applicant respectfully requests that the Examiner reconsider and withdraw the §103(a) rejection of Claims 1 and 26.

Regarding Claims 2-5, 9-10 and 27-30, Claims 2-5, 9-10 and 27-30 are also patentable over the combination of Dally in view of Rokhsaz, based on their dependency from amended Claims 1 and 26, respectively, and for at least the reasons provided above. Consequently, Applicant respectfully requests that the Examiner reconsider and withdraw the §103(a) rejection of Claims 2-5, 9-10 and 27-30.

Regarding Claim 11, Claim 11, as amended, recites the following claim feature, which is neither taught nor suggested by the combination of Dally in view of Rokhsaz:

a line driver including:  
a first switch of a second device type to generate a complement output driver signal in response to the predriver signal,  
a second switch of the second device type to generate an output driver signal in response to the complement predriver signal,  
a first output pad coupled to the first switch to provide the complement output driver signal onto a motherboard for communication over a serial interconnect, and  
a second output pad coupled to the second switch to provide the output driver signal onto the motherboard for communication over the serial interconnect. (Emphasis added.)

For at least the reasons indicated above, Applicant respectfully submits that the combination of Dally in view of Rokhsaz to provide the circuit (FIG. 7) of Dally on a printed circuit board in order to transmit or transport communication signals to another electronic device, as suggested by the Examiner, would still fail to teach or suggest each and all claim limitations recited by amended Claim 11, as required to establish a *prima facie* case of obviousness. Id. Applicant respectfully submits that the output generated by

repeater 160 (yP and yN) is provided to clocked receiver 119 to generate the output for the entire line (oP, oN). (See, Dally, col. 6, lines 1-14.)

Furthermore, yP and yN do not represent output pads, and merely represent a link between repeater 160 and clocked receiver 119. Accordingly, even assuming, arguendo, that first output pad yP and second output pad yN are coupled to first switch 137 and second switch 138 via each bridge driver 110, as suggested by the Examiner, yP and yN clearly do not represent output pads, as such output pads are clearly coupled to clocked receiver 119, as shown in FIG. 7.

Accordingly, for at least the reasons provided above, Applicant respectfully submits that the prior art combination of Dally in view of Rokhsaz fails to teach or suggest all claim limitations recited by amended Claim 11, as required to establish a *prima facie* case of obviousness. Id.

Therefore, for at least the reasons provided above, Applicant respectfully submits that amended Claim 11 is patentable over the combination of Dally in view of Rokhsaz. Consequently, Applicant respectfully requests that the Examiner reconsider and withdraw the §103(a) rejection of amended Claim 11.

Regarding Claims 12-15 and 19-20, Claims 12-15 and 19-20, based on their dependency from Claim 11, are also patentable over the combination of Dally in view of Rokhsaz. Therefore, Applicant respectfully requests that the Examiner reconsider and withdraw the §103(a) rejection of Claims 12-15 and 19-20.

The Examiner has rejected Claims 6-8 and 16-20 under 35 U.S.C. §103(a) as being unpatentable over Dally in view of Rokhsaz and further in view of U.S. Patent No. 5,965,299 issued to Bass (“Bass”). Applicant respectfully traverses this rejection.

Regarding the Examiner’s citing of Bass, Applicant respectfully submits that the Examiner’s citing of Bass fails to rectify the deficiencies of the prior art combination of Dally in view of Rokhsaz to teach or suggest a pair of line driver switches of an output driver of a second device type to generate a differential output driver signal pair for a pair of output pads coupled to the pair of line driver switches, as recited by amended Claims 1 and 11.

Accordingly, for at least the reasons provided above, Applicant respectfully submits that amended Claims 1 and 11 are patentable over the combination of Dally in view of Rokhsaz and further in view of Bass. Id. Therefore, Applicant respectfully requests that the Examiner reconsider and withdraw the §103(a) rejection of Claims 6-8 and 16-18, which are also patentable over the combination of Dally in view of Rokhsaz and further in view of Bass, based on their dependency from amended Claims 1 and 11, respectively.

The Examiner has rejected Claims 22-25 under 35 U.S.C. §103(a) as being unpatentable over Khoury. Applicant respectfully traverses this rejection.

For at least the reasons provided above with regard to the §102(e) rejection of Claim 21 as anticipated by Khoury, Applicant respectfully submits that for at least the reasons provided above, amended Claim 21 is patentable over Khoury. Id. Consequently, amended Claim 21 is patentable over Khoury, whether rejected as being unpatentable over Khoury under 35 U.S.C. §103(a) or as being anticipated by Khoury under 35 U.S.C. §102(e).

Accordingly, Claims 22-25, based on their dependency from amended Claim 21, are also patentable over Khoury, as well as the references of record. Therefore, Applicant respectfully requests that the Examiner reconsider and withdraw the §103(a) rejection of Claims 22-25.

The Examiner has rejected Claim 31 under 35 U.S.C. §103(a) as being unpatentable over Khoury in view of U.S. Patent No. 6,894,536 issued to Martin et al. ("Martin"). Applicant respectfully traverses this rejection.

Regarding Claim 31, Claim 31 recites a pull-down circuit including analogous claim features to the pull-down circuit of the pre-driver circuit recited by amended Claim 21. As indicated by amended Claim 21, and Claim 31, the pull-down device of the first device type has a source coupled to ground. Conversely, the pull-down devices 114 and 116 of the pre-driver 402, as shown in FIG. 4A of Khoury are neither coupled to ground.

Accordingly, for at least the reasons provided above with regarding the §102(e) rejection of Claim 21 as anticipated by Khoury, Applicant respectfully submits that the Examiner is prohibited from establishing a *prima facie* case of obviousness of Claim 31, since the prior art combination of Khoury in view of Martin fail to teach or suggest that the



pull-down device of the pull-down circuit of a pre-driver circuit includes a source coupled to ground, as recited by Claim 31. Id.

Consequently, Applicant respectfully submits that Claim 31 is patentable over the combination of Khoury in view of Martin. Therefore, Applicant respectfully requests that the Examiner reconsider and withdraw the §103(a) rejection of Claim 31.

### CONCLUSION

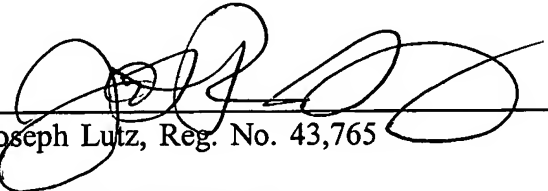
In view of the foregoing, it is submitted that Claims 1-31, as amended, patentably define the subject invention over the cited references of record, and are in condition for allowance and such action is earnestly solicited at the earliest possible date. If the Examiner believes a telephone conference would be useful in moving the case forward, he is encouraged to contact the undersigned at (310) 207-3800.

If necessary, the Commissioner is hereby authorized in this, concurrent and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2666 for any additional fees required under 37 C.F.R. §§1.16 or 1.17, particularly, extension of time fees.

Respectfully submitted,

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Dated: May 17, 2006

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May 17, 2006

Marilyn Bass

May 17, 2006